



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/551,948	10/06/2005	Myrtill Kahn	0617-1028	6839
466 7590 04/24/2008 YOUNG & THOMPSON 209 Madison Street Suite 500 ALEXANDRIA, VA 22314			EXAMINER NGUYEN, KHANH TUAN	
			ART UNIT 1796	PAPER NUMBER
			MAIL DATE 04/24/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/551,948

Applicant(s)

KAHN ET AL.

Examiner

KHANH T. NGUYEN

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 October 2005.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 25-44 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 25-44 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 06 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-859)
Paper No(s)/Mail Date 10/06/2005 and 01/06/2006
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. Applicant's election without traverse of claims 25-44 in the reply filed on 02/14/2008 is acknowledged. Claims 1-24 and 45-59 have been canceled.

Priority

2. The instant application 10/551,948 filed on 10/06/2005 has claimed foreign priority filed on 04/07/2003. However, USPTO received only a certified copy of France 03/04285, also publish as WO 2004/092069 A2, but without English translation. Therefore, only filing date of 10/06/2005 is granted according the MPEP.

Information Disclosure Statement

3. The information disclosure statement (IDS) filed on 10/06/2005 and 01/06/2006 has been considered. An initialed copy accompanies this Office Action.

Drawings

Art Unit: 1796

4. The drawing(s) filed on 10/06/2005 has been considered.

Specification

5. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

6. The Examiner further noted that the specification lacks a brief description selection for Fig. 1 to Fig. 18. Appropriate correction is required.

Claim Objections

7. Claims 31, 38 and 44 are objected to because of the following informalities: An alternative expression of a Markush group should provide the introductory phrase "consisting of" with the conjunctive "and". See MPEP 2173.05(h). Appropriate correction is required.

8. Claim 32 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 32 recites a ligand selected from at a base and an acid which failed to further limit the subject matter of claim 26.

Claim Rejections - 35 USC § 102/103

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The definition of "organometallic precursor" and "non-aqueous solvent medium" are noted in the specification on page 5.

11. Claims 25-40 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over either O'Brien et al. (U.S. Pub. 2007/0140951 A1 hereinafter, "O'Brien") or Murray et al. (U.S. Pat. 6,262,129 B1 hereinafter, "Murray").

O'Brien discloses a method for preparing nanoparticles to form transition metal oxide nanocrystals having high quality and stability [0008]. O'Brien discloses a method

for synthesizing nanoparticles wherein metal acetate precursor (e.g. zinc acetate) under anhydrous conditions in a presence of a non-aqueous hydrocarbon-based solvent containing trialkylamine organic solvent with at least one organic stabilizing ligand such as oleic acid is decomposed at temperature ranging from 100 to 150°C (Abstract and [0010, 0013 and 0048-0051]). O'Brien discloses said metal acetate precursor may be selected from transitional metal oxide [0037].

Similarly, Murray discloses a method of forming nanoparticles comprising steps of forming a metal precursor solution from a transition metal, injecting the metal precursor solution to a surfactant solution (i.e. ligand containing solution), adding a flocculent to cause nanoparticles to precipitate out of solution without agglomeration and adding hydrocarbon solvent to redisperse the nanoparticles (Abstract). The said surfactant may either be a straight or branch chain containing 8 to 22 carbon atoms (Col. 6, line 56 to Col. 7, line 11). Murray also discloses oxidizing a metal oxide particle using super-hydride (LiBhEt_3) oxidizing agent in tetrahydrofuran (THF) and alkylammonium bromide (R_4NBr) at room temperature (i.e. ambient temperature) (Col. 8, lines 4-10).

The reference specifically or inherently meets each of the claimed limitations in their broadest interpretations. The reference is anticipatory.

In the alternative that the above disclosure is insufficient to anticipate the above listed claims, it would have nonetheless been obvious to the skilled artisan to produce the claimed nanoparticles, any minor modification necessary to meet the claimed limitations would have been within the purview of the skilled artisan because the prior

Art Unit: 1796

art suggests a substantially similar ingredients use in substantially similar method as claimed.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over either O'Brien (U.S. Pub. 2007/0140951 A1) with or Murray (U.S. Pat. 6,262,129 B1) in view of Strouse et al. (U.S. Pub. 2006/0061017 A1 hereinafter "Strouse").

O'Brien or Murray is relied upon as set forth above. With respect to instant claim 42, O'Brien and Murray did not explicitly suggest a zinc dicyclohexyl as organometallic precursor.

In an analogous art of preparing nanoparticles, Strouse suggest using either a zinc acetate or zinc dicyclohexyl organometallic precursor [0055].

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of O'Brien or Murray by substituting the zinc acetate organometallic precursor of O'Brien or Murray with the zinc dicyclohexyl as suggested by Strouse because Strouse suggests a method of

Art Unit: 1796

synthesizing nanoparticles with either zinc acetate or zinc dicyclohexyl organometallic precursor.

14. Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over either O'Brien (U.S. Pub. 2007/0140951 A1) with or Murray (U.S. Pat. 6,262,129 B1) in view of Fau (EP 0947245 A1 hereinafter "Fau").

O'Brien or Murray is relied upon as set forth above. With respect to instant claim 42, O'Brien and Murray did not explicitly suggest a tin bis(bis(dimethylamide)) $[\text{Sn}(\text{N}(\text{CH}_3)_2)_2]$ as an organometallic precursor.

In an analogous art of preparing nanoparticles, Fau suggest using amido complex $[\text{Sn}(\text{N}(\text{CH}_3)_2)_2]$ (i.e. tin bis(bis(dimethylamide))) as an organometallic precursor to prepare nanoparticles [0018].

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of O'Brien or Murray by substituting the organometallic precursor of O'Brien or Murray with the tin bis(bis(dimethylamide)) $[\text{Sn}(\text{N}(\text{CH}_3)_2)_2]$ as suggested by Fau because all the claimed elements were known in the prior art and the one skilled in the art could have combined the elements as claimed by the know methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

15. Claims 42-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over either O'Brien (U.S. Pub. 2007/0140951 A1) with or Murray (U.S. Pat. 6,262,129 B1) in view of Kortshagen et al. (U.S. Pub. 2006/0051505 A1 hereinafter "Kortshagen").

O'Brien or Murray is relied upon as set forth above. With respect to instant claim 42-44, O'Brien and Murray did not explicitly suggest using a mixture of organometallic precursors.

In an analogous art of preparing nanoparticles, Kortshagen suggest a method of preparing nanoparticles using a mixture of metal precursors [0052]. The metal cyclopentadiene precursors may be selected from Group IIA elements (e.g. Indium) and Group IVA elements (e.g. Tin) [0055 and 0057].

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of O'Brien or Murray by incorporating a mixture of organometallic precursors of tin cyclopentadiene and indium cyclopentadiene as suggested by Kortshagen with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

Conclusion

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KHANH T. NGUYEN whose telephone number is

Art Unit: 1796

(571)272-8082. The examiner can normally be reached on Monday-Friday 8:00-5:00 EST PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Kopec/
Primary Examiner, Art Unit 1796

/KTN/
04/16/2008